

DISEASE MANAGEMENT



Septoria on tomatoes has wind-blown spores that will infect fields if its host is not fully decomposed.



Root diseases such as phytophthora prefer the cool, moist conditions of no-till, particularly on poorly drained clay soils.

Overall, disease pressures are not worse in no-till crop production systems. You may get more upper plant diseases – something to consider if you grow horticultural crops, as this could affect crop quality. But in general, there will be fewer root diseases with time. As with weeds and insects, the no-till habitat will be favoured by those diseases that prefer cooler, wetter and less disturbed surface conditions.

Diseases that prefer the cool, moist conditions of no-till are particularly challenging on poorly drained clay soils.

Soil conditions such as seedbed structure will improve in no-till over time, and with that comes a better aerated growth environment for plant roots.

Diseases may have less impact on no-till crops. No-till soils are less drought-prone. Many diseases (especially root rots) have a greater impact on yield in droughty conditions.

The best disease treatments are **preventative**. Remember:

- ▶ good soil management reduces incidence of disease – for best management practices that improve soil structure, prevent or reduce soil compaction, as well as increase internal drainage, refer to *Soil Management* (Best Management Practices)
- ▶ seed treatment can help control of seed decay (Phomopsis), damping off
- ▶ crop rotations break disease cycles
- ▶ rotation becomes even more important with horticulture crops in order to keep disease to a minimum in no-till
- ▶ varietal selection – beyond specific disease resistance or tolerance, the key is to look for the better overall performers for your maturity zone
- ▶ good crop nutrition helps fight diseases.

Healthy crops form the best defense.

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BEST MANAGEMENT PRACTICES

	DISEASE	CONDITIONS	IMPORTANCE	BEST MANAGEMENT PRACTICES & TIPS
CORN	Anthracnose	<ul style="list-style-type: none"> • warm and rainy • high residue 	<ul style="list-style-type: none"> • affects leaves and stalk 	<ul style="list-style-type: none"> • plant several hybrids to spread out risk • choose resistant hybrids • crop rotation
	Gibberella	<ul style="list-style-type: none"> • warm and wet near silking 	<ul style="list-style-type: none"> • affects ear, seedling and stalk • mycotoxins in the grain 	<ul style="list-style-type: none"> • crop rotation • choose tolerant hybrids • choose hybrids for your heat unit area • plant early • use a seed treatment
	Fusarium	<ul style="list-style-type: none"> • warm and wet near silking 	<ul style="list-style-type: none"> • affects ear, seedling and stalk • mycotoxins in the grain 	<ul style="list-style-type: none"> • crop rotation • choose tolerant hybrids • plant early • use a seed treatment
	Diplodia	<ul style="list-style-type: none"> • wet conditions late in the season 	<ul style="list-style-type: none"> • affects stalk and ear 	<ul style="list-style-type: none"> • avoid late hybrids • harvest early • crop rotation
	Pythium	<ul style="list-style-type: none"> • warm and wet 	<ul style="list-style-type: none"> • affects seedling, root and stalk 	<ul style="list-style-type: none"> • use a seed treatment • good drainage will help • crop rotation
	Northern corn leaf blight	<ul style="list-style-type: none"> • wet conditions in residue 	<ul style="list-style-type: none"> • affects leaves 	<ul style="list-style-type: none"> • choose resistant hybrids • crop rotation
	Eyespot	<ul style="list-style-type: none"> • moist conditions • high residue 	<ul style="list-style-type: none"> • affects leaves and stalk 	<ul style="list-style-type: none"> • choose resistant hybrids • crop rotation
	SOYBEANS	Phytophthora	<ul style="list-style-type: none"> • cool, wet soils • clay soils 	<ul style="list-style-type: none"> • affects seedling, roots and stem • stand loss
Rhizoctonia		<ul style="list-style-type: none"> • warm, wet soils followed by drought or herbicide stress 	<ul style="list-style-type: none"> • affects seedling and roots • stand loss 	<ul style="list-style-type: none"> • crop rotation • good drainage will help • use a seed treatment
Pythium		<ul style="list-style-type: none"> • wet soils 	<ul style="list-style-type: none"> • stand loss 	<ul style="list-style-type: none"> • use a seed treatment
Phomopsis		<ul style="list-style-type: none"> • warm wet conditions at emergence and during pod fill 	<ul style="list-style-type: none"> • stand loss • seed loss 	<ul style="list-style-type: none"> • use a seed treatment • avoid early varieties in long season areas
White mould		<ul style="list-style-type: none"> • cool wet conditions August to harvest 	<ul style="list-style-type: none"> • crop loss • affects stem 	<ul style="list-style-type: none"> • no-till reduces survival of fungal bodies (sclerotia)



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BEST MANAGEMENT PRACTICES, cont'd.

	DISEASE	CONDITIONS	IMPORTANCE	BEST MANAGEMENT PRACTICES & TIPS
WHEAT	Tan spot	<ul style="list-style-type: none"> • high residue • moist conditions 	<ul style="list-style-type: none"> • affects leaves 	<ul style="list-style-type: none"> • crop rotation • apply foliar fungicide if needed • refer to cereal chapter, OMAFRA <i>Publication 296</i>
	Fusarium	<ul style="list-style-type: none"> • warm and wet at flowering • wet conditions at planting 	<ul style="list-style-type: none"> • affects head and seedling • creates conditions favourable to mycotoxin in the grain 	<ul style="list-style-type: none"> • crop rotation • do not plant wheat into corn stubble • seed treatment • plant several varieties to spread risk
	Septoria	<ul style="list-style-type: none"> • high residue • cool and wet conditions 	<ul style="list-style-type: none"> • affects leaves and heads 	<ul style="list-style-type: none"> • crop rotation • apply foliar fungicide if necessary
	Eyespot	<ul style="list-style-type: none"> • high residue • high soil moisture • cool and wet conditions 	<ul style="list-style-type: none"> • affects stem • lodging 	<ul style="list-style-type: none"> • crop rotation
	Take-all	<ul style="list-style-type: none"> • high residues • moisture conditions 	<ul style="list-style-type: none"> • affects roots • results in empty bleached heads 	<ul style="list-style-type: none"> • crop rotation • apply foliar fungicide if necessary • control volunteer wheat and grassy weeds
	Powdery mildew	<ul style="list-style-type: none"> • high residues • cool or humid conditions • dense canopy 	<ul style="list-style-type: none"> • affects foliage and stems 	<ul style="list-style-type: none"> • crop rotation • avoid high nitrogen • destroy volunteer wheat before planting wheat • apply foliage fungicide if needed • crop rotation



Disease Management



Fusarium ear mold.



Fusarium head blight.



Rhizoctonia root rot.